

## **ABSTRACT**

The present invention relates to an apparatus for monitoring the progress of membrane fouling that occurs on pores as well as on the surface of a membrane by means of variations of zeta potential ( $\zeta$ ) of a hollow-fiber membrane according to time passage of filtration of a suspension, wherein colloid particles, biopolymers and other inorganic particles are dispersed, and the method thereof. Moreover, the present invention also relates to a method to identify the effect of concentration polarization layer and cake layer which can vary according to the axial position of a hollow-fiber and the developing progress of a membrane fouling by measuring the position-dependent zeta potential of the hollow-fiber membrane.